



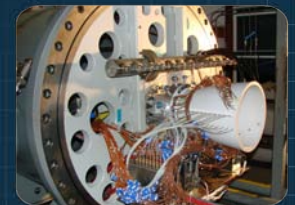
NATIONAL INSTITUTE FOR ROCKET PROPULSION SYSTEMS

## Solutions Facilitator

Joint Army Navy NASA Air Force 8<sup>th</sup> Modeling and  
Simulation/6<sup>th</sup> Liquid Propulsion/5<sup>th</sup> Spacecraft Propulsion  
Joint Subcommittee Meeting

December 5-9, 2011

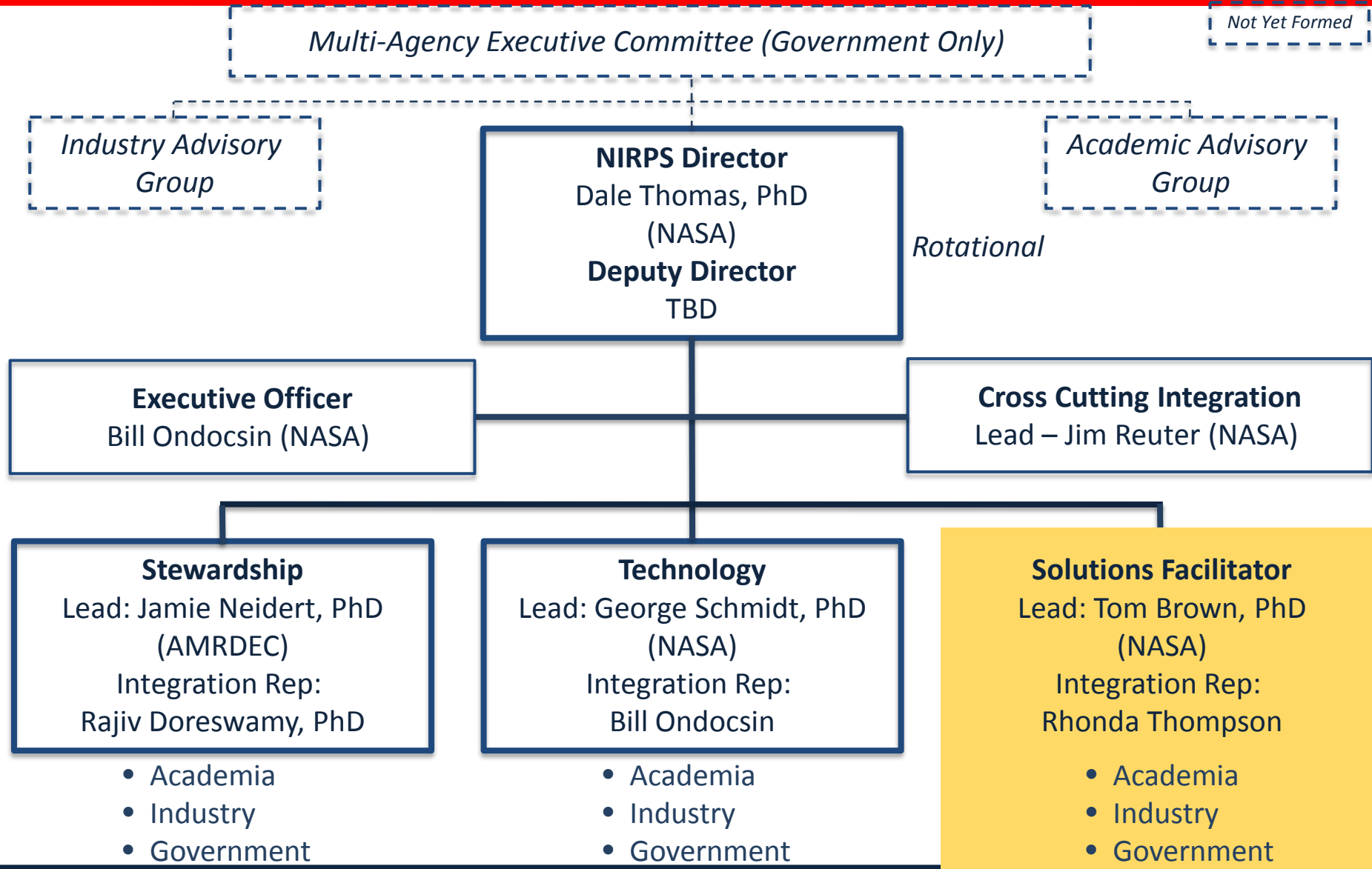
**Tom Brown, PhD**  
NASA Marshall Space Flight Center



# Outline

- NIRPS Planning Organization
- Solutions Strategy Team Membership
- Solutions scope and the Grand Challenges
- Notional operating model and “solutions” challenges
- Key milestones and near term products
- Conclusion

# NIRPS Planning Organization



# Solutions Team Membership

Thomas (Tom) Brown – Lead

Rhonda Childress-Thompson – Facilitator

- Brett Alexander Blue Origin
- Randy Kendall Aerospace Corp
- Nickolas Demidovich Federal Aviation Administration
- Steven J. Gentz NESC, MSFC Chief Engineer
- Roberto Garcia NESC, Propulsion Fellow
- Dr. Eun S. Kim Aerospace Corp
- Mark Moody Rocket Propulsion Test Management Board – SS
- Roger Baird NASA Propulsion Steering Committee – MSFC
- Mitchell Walker Georgia Tech
- Frank McCall Boeing
- David Jacobson NASA GRC



# NIRPS: A Joint Solution

## Scope:

National  
Multi-organizational  
Multi-sector

## Purpose:

NIRPS will help preserve and align government and private rocket propulsion capabilities to meet present and future US commercial, civil, and defense needs, while providing authoritative insight and recommendations to National decisional authorities

## Tri-faceted approach:

- **Stewardship:** Monitor and analyze the state of the industry in order to formulate and recommend National Policy options and strategies that promote a healthy industrial base and ensure best-value for the American taxpayer
- **Technology:** Identify technology needs and recommend technology insertions by leading roadmap assessments and actively participating in program formulation activities
- **Solutions Facilitator/Provider:** Maintain relationships and awareness across the Government, industry and academia, to align available capacity with emerging demand

**A Unique National Resource with the Capability to Serve Multiple Interests**

# Solutions Scope/Goals

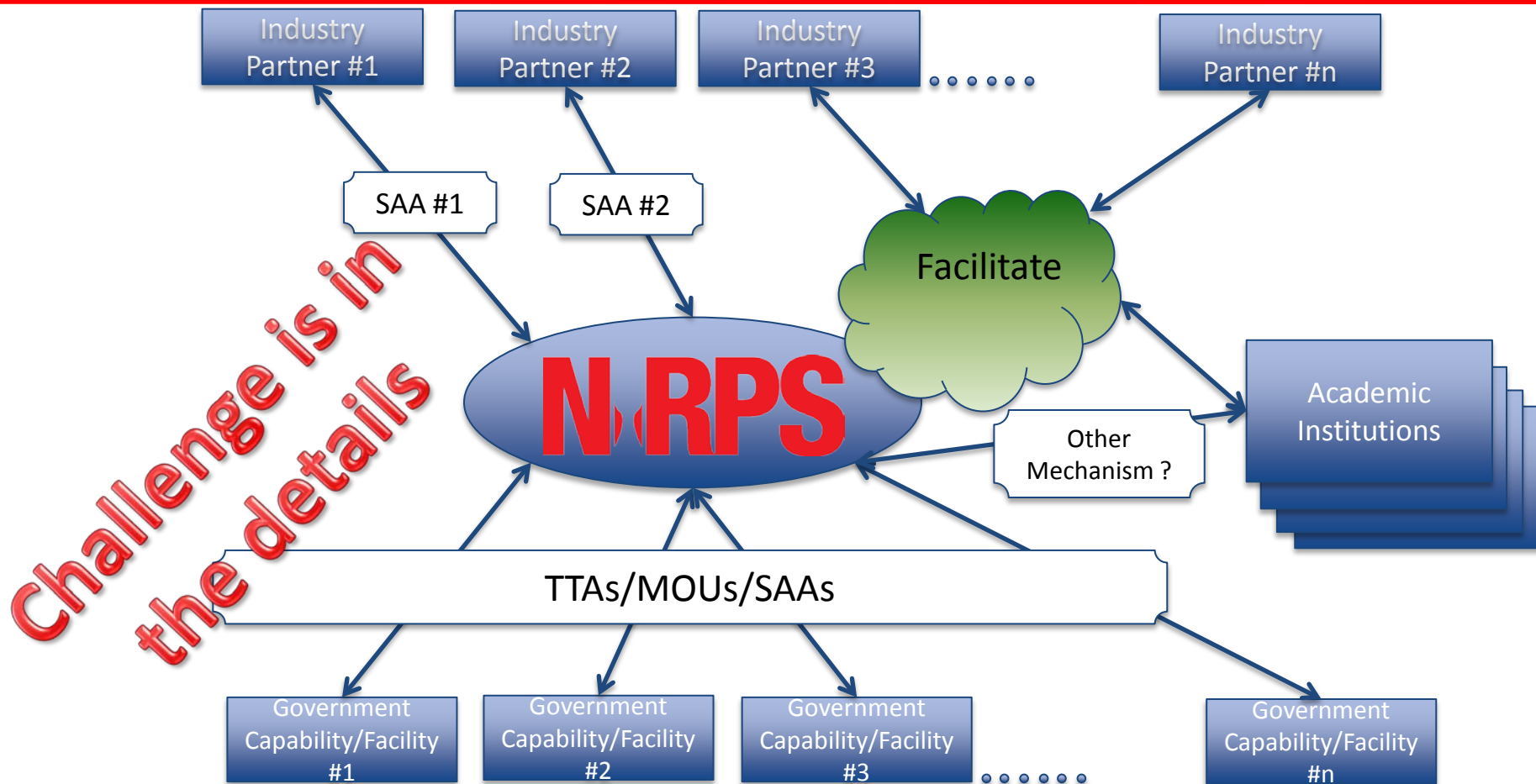
- Primarily a “Facilitator” to allow existing skills, capabilities to be leveraged by multiple industry partners
- Simplifies process of working with multiple government entities
- Potential single point/interface for government, academic, and potentially other industry capabilities
- Provides a resource to communicate available skills, capabilities, etc...
- Allows partners to complete required skill/capability sets without “re-inventing the wheel”

# Grand Challenges

Grand Challenge	Stewardship	Technology	Solutions Facilitator
Support the competitiveness and resilience of the industrial base	Primary	Secondary	Secondary
Reduce development and sustainment costs for missile and rocket systems	Primary	Secondary	Secondary
Collaborate across agencies for missile and rocket propulsion system development	Secondary	Secondary	Primary
Foster access to facilities and expertise across Government, industry, and academia	Secondary	Secondary	Primary
Develop and implement an integrated science and technology plan for propulsion systems	Secondary	Primary	Secondary
Invigorate the STEM pipeline	Secondary	Primary	Secondary

***The “Solutions” facet of NIRPS addresses or partially addresses each of the six GRAND CHALLENGES***

# A Notional Solutions Operations Model



**NIRPS provides and facilitates simplified access to a broad range of national propulsion capabilities/facilities**



# Capabilities/Facilities Inventory

***Objective: comprehensive “inventory” of government capabilities & facilities that can be leveraged to support industry needs***

## **Challenges:**

1. What skills, capabilities, facilities should be included?
2. How is this implemented?
3. How do we deal with industry information and sensitivities?
  - a) Use of excess capacity?
  - b) Competition & other sensitivities?

# Schedule to Initial Operational Capability

## *(Key Milestones & Products)*

- **Key Milestone:** Initial Operating Capability April 2012
- **Near Term Required Products**
  - Scope & Draft Charter
  - Initial Concept of Operations
  - Initial Skill/Capabilities Inventory

NIRPS “Solutions” plans  
to enable our nation’s future in rocket  
propulsion systems by leveraging existing  
skills and capabilities to support  
industry’s future needs